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**AI Lab - Eight queens Problem**

**Aim: To perform Eight queens Problem in python language using google colab.**

**Algorithm:**

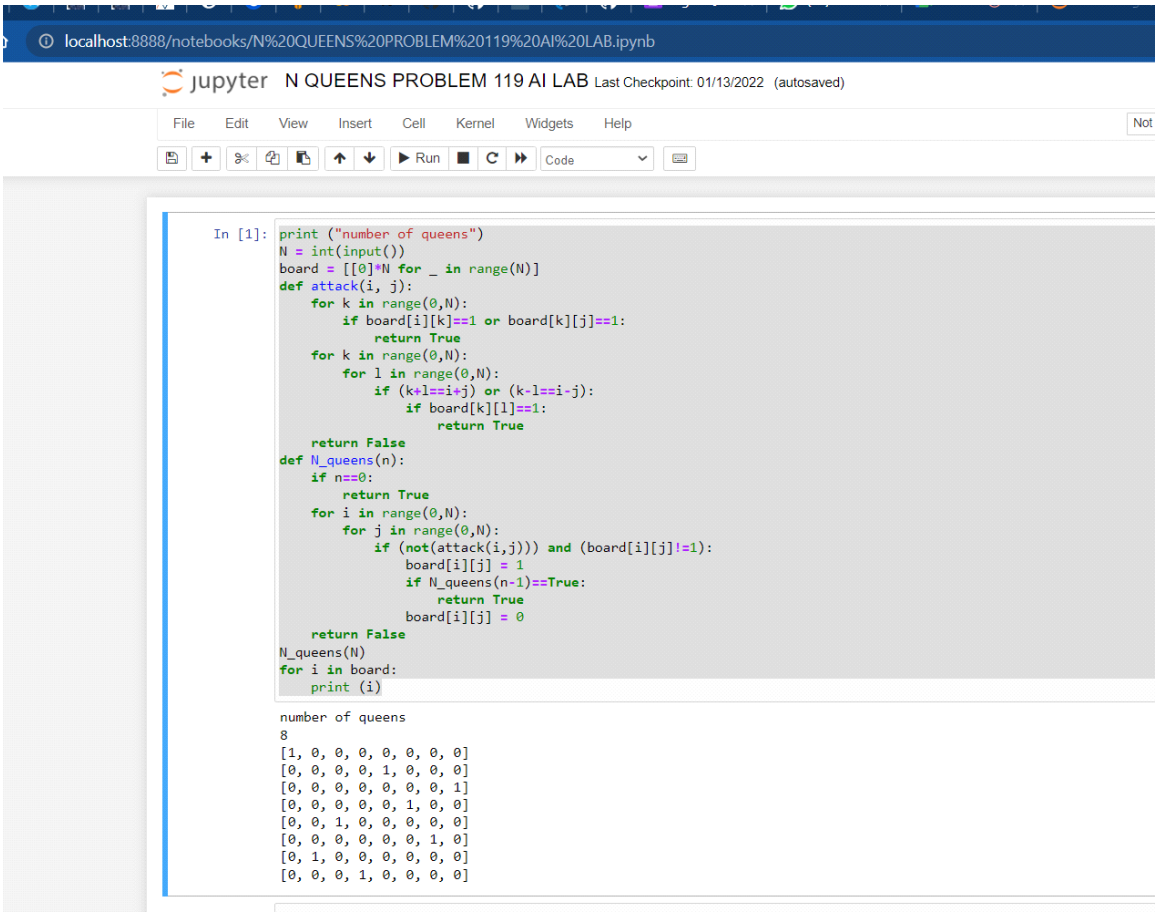
- **Create a chessboard of NxN (where N is 8) matrix with all elements 0.**
- **Create a function to check if we can place a queen there or not, queen will not be placed if the place is being attacked or already occupied by another queen.**
- **In that function check vertically and horizontally to find whether there are other queens or not.**
- **Also check diagonal positions.**
- **Place the queen if it is not being attacked by any other queen.**
- **Do recursion to check wether we can put the next queen with this arrangment or not.**
- **End when all queens are placed.**

# CODE:

```
print ("number of queens")
N = int(input())
board = [[0]*N for _ in range(N)]
def attack(i, j):
    for k in range(0,N):
        if board[i][k]==1 or board[k][j]==1:
            return True
    for k in range(0,N):
        for l in range(0,N):
            if (k+l==i+j) or (k-l==i-j):
                if board[k][l]==1:
                    return True
    return False
def N_queens(n):
    if n==0:
        return True
    for i in range(0,N):
        for j in range(0,N):
            if (not(attack(i,j))) and (board[i][j]!=1):
                board[i][j] = 1
```

```
                    if N_queens(n-1)==True:
                        return True
                    board[i][j] = 0
    return False
N_queens(N)
for i in board:
    print (i)
```

# OUTPUT:



**RESULT:**

**Hence Eight queens Problem in python language using google colab was performed.**